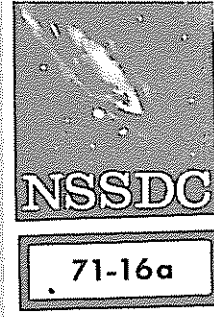


Geology - Planetary and Lunar

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PART I
DATA USERS' NOTE

APOLLO 14
LUNAR PHOTOGRAPHY

(NSSDC ID NO. 71-008A-01)

AUGUST 1971

RETURN TO
HAWAII INSTITUTE OF GEOPHYSICS
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NATIONAL SPACE SCIENCE DATA CENTER

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION • GODDARD SPACE FLIGHT CENTER, GREENBELT, MD.

PACIFIC REGIONAL
PLANETARY DATA CENTER

Surface Particle Identification:	As low as .004 in.
Resolution:	Approximately 40 microns
Magnification:	0.33 times
Base-Height Ratio:	0.16 for stereoscopic photos
Stereo Angle:	9° convergent
Cycling Time:	10 sec
Object Plane Coverage:	9 sq in.

Hycon Lunar Topographic Camera. This electrically operated camera, which was carried aboard the Command Module, was a modified KA-7A Aerial Reconnaissance Camera, which, when used, was mounted in the crew access hatch window. A remote control box and interconnecting cable provided automatic mode for strip photography or manual mode for single frames. Variable Forward Motion Compensation (FMC) allowed for the spacecraft orbital motion. For each frame exposed, a small clock showing the day and time was simultaneously exposed to the side of the frame. This photography was intended to support the objective of obtaining high-resolution photography of future landing sites and areas of scientific interest. The settings, ranges, and characteristics of this modified aerial reconnaissance camera were:

Lens Focal Length:	18 in. (coated with antireflection coating)
Fixed Aperture:	f/4.0
Focal Plane Shutter Speeds:	1/50, 1/100, and 1/200 sec exposure (Only the 1/200 sec was used during the mission.)
Field of View (Angular Coverage):	14° 7.5'. Swath width was 1-3/4 mi at an altitude of 8 mi, and 14 mi at 60-mi orbit altitude at the NADIR
Frame Format:	4.5 x 4.5 in.

Resolution:	
1. Static Target	
Contrast 1000:1	AWAR 150 lines/mm
2. Actual	
	15 to 25 ft from 60 n.m.
	3 to 5 ft from 8 n.m.
Filter:	Wratten 12
Cycling Rate:	Automatic from 4 to 75 frames/min; single framing
Film Flattening:	Vacuum platen
Forward Motion Compensation (FMC):	Rocking mount, servo-controlled
Data Recording:	Fiducial marks: time in hr, min, sec; date; magazine number; and shutter speed
Power:	28 v, DC - 1.4 amp peak, 30 w average
Camera Weight, Less Film:	65 lb
Film Capacity:	5 in. x 100 ft, standard base (5.2 mil) 5 in. x 200 ft, thin base (2.5 mil)
Camera Size:	Length 28-1/8 in. Width 10-1/2 in. Height 12-1/4 in.

A camera malfunction part way into the mission caused the shutter to operate continually. This resulted from a transistor failure caused by a sliver of aluminum that became lodged and shorted the system on the shutter pulse switching circuit. Also, the lack of a continuous pulse, which activated the focal plane shutter, caused an intervalometer anomaly resulting in multiple exposure of the same scene. In addition, this same region of the film was overexposed approximately two stops. The latter malfunction is still being investigated to determine any possible connection with the original failure.